Air travel as a risk factor for venous thromboembolism (VTE) and the effectiveness of preventive measures

Adi Y, Bayliss S, Rouse A, Lip GY, Taylor R

Record Status
This is a bibliographic record of a published health technology assessment. No evaluation of the quality of this assessment has been made for the HTA database.

Citation

Authors’ objectives
The aims of this review were to ascertain if air flight poses a serious risk to travellers in terms of the development of future venous thromboembolic disease (VTE) and, if so, provide advice on possible strategies for the prevention of VTE with air travel.

1) To determine the incidence of thromboembolic disease (VTE) in air travellers. 2) To assess the strength of evidence of air flight as a risk factor for VTE 3) To assess the efficacy of preventive interventions designed to reduce the risk of VTE in air travellers.

Authors’ conclusions
- We found relatively few studies that met the criteria for inclusion under the headings of each of the three aims of this systematic review; (i) Incidence of VTE in air travellers:- 6 studies; (ii) Air flight is a risk factor for VTE?:- 3 studies; and (iii) Intervention measures on the prevention of VTE?:- 2 studies.

- The comparison of findings across studies is made particularly difficult because of the variations in populations (i.e., proportion of high risk individuals) studied and the definitions of both outcome (i.e., asymptomatic v. symptomatic VTE) and exposure (i.e., differing durations of flight).

- Accepting these differences, there was little or no consistent evidence of an increased incidence of venous thromboembolic events (VTE) in air travellers. Moreover, we found no evidence to support the current belief that long haul (i.e., 2 hours or more) air flight is a risk factor for the development of VTE (OR 1.11 95% CI 0.64 to 1.94).

- The two case-control studies that have reported a statistically significant increase in the VTE with long haul travel (i.e. 3 hours or more) were not limited to air travel alone and included only high-risk individuals. The application of the findings of these studies specifically to air travel is uncertain.

- We identified 2 randomised controlled trials, these were not of high quality that may suggest prophylactic measures can significantly reduce the risk of VTE (primarily asymptomatic) in air travellers, for example, support stockings (OR 0.04, 0.01 to 0.23 95% CI), and low molecular weight heparin LMWH significantly reduces the risk p=0.02 but aspirin use was not associated with a reduced risk of DVT according to one RCT and there was a significant increase in the risk of bleeding events with both aspirin and heparin. No RCTs of other preventive measures, such as in-flight exercise or increased hydration, were identified

- The number of individuals identified in this review is only sufficient to detect a risk of developing DVT following air travel if the OR were to be 10 or over, based on current evidence.

Project page URL
Final publication URL
http://www.birmingham.ac.uk/research/activity/mds/projects/HaPS/PHEB/WMHTAC/REP/reports-list.aspx

URL for DARE abstract
http://www.crd.york.ac.uk/CRDWeb/ShowRecord.asp?ID=12004008030

Indexing Status
Subject indexing assigned by CRD

MeSH
Aircraft; Thromboembolism /prevention & control; Travel; Venous Thrombosis /prevention & control

Language Published
English

Country of organisation
England

Address for correspondence
Elaena Donald-Lopez, West Midlands Health Technology Assessment Collaboration, Department of Public Health and Epidemiology, University of Birmingham, Edgbaston, Birmingham B15 2TT Tel: +44 121 414 7450; Fax: +44 121 414 7878 Email: louise.a.taylor@bham.ac.uk

AccessionNumber
32003001166

Date bibliographic record published
12/12/2003

Date abstract record published
12/12/2003